REMARKS

Claims 2 to 6 and 19 to 24 are now in the application.

With respect to the rejection to claims 1-6 and 18-20 under 35 U.S.C. 112, second paragraph, reconsideration by the Examiner is respectfully requested on the following grounds.

The claims have been amended to delete the term "essentially" and to specify that the oligonucleotide of the specified formula is the oligonucleotide consisting of arabinose sugars substituted at 2' position of the sugar ring.

Moreover, the scope of the claims has been limited to β-arabinose units and to eliminate the broad recitation of alkylhalide and alkylsulfhydryl, and the recitation of specific halogen elements, which is now believed to properly define the metes and bounds of the patent protection desired. Claims 20 to 24 have been introduced to more precisely define specific halogen elements.

The amendments to claims as presented above are believed to overcome the Examiner's rejections under 35 U.S.C. 112, second paragraph.

With respect to the rejection to claims 1, 4-6, and 18-20 under 35 U.S.C. 102(b), reconsideration by the Examiner is respectfully requested on the following grounds.

Claims 1, 4-6 and 18-20 have been rejected as being anticipated by Meyer, Jr. et al. (US Patent No. 5,177,196).

Meyer, Jr. et al. disclose novel oligonucleotide compositions formed from α-D-arabinofuranosyl nucleoside monomers. These oligonucleotides are disclosed as being useful as

chemotherapeutic agents to control the expression of gene sequences or to inhibit mRNA translation.

Meyer, Jr. et al does not disclose oligonucleotide compositions formed from β-arabinose units.

The claims have been amended to be limited to compositions formed from β-arabinose units. Therefore, the claims has presently on file are not anticipated by Meyer, Jr. et al. Moreover, it would not have been obvious to the one having ordinary skills in the art, at the time of the invention, to arrive to the present invention from the teaching of Meyer, Jr. et al since it does not comprise any incentive to prepare oligonucleotide composition formed from β-arabinose units.

The amendments to claims as presented above are believed to overcome the Examiner's rejections under 35 U.S.C. 102(b).

With respect to the rejection to claims 1-6, and 18-20 under 35 U.S.C. 103(a), reconsideration by the Examiner is respectfully requested on the following grounds.

Claims 1-6 and 18-20 have been rejected as being unpatentable over Cheng et al. (US Patent No. 5,646,126) in view of Chu et al. (US Patent No. 5,808,040) and Meyer, Jr. et al. (US Patent No. 5,177,196).

Cheng et al. describe oligonucleotides comprising 2'-deoxy, 2'-fluoro or 2'-difluoro nucleosides, wherein between 8 and 18 of said nucleosides are linked consecutively. Additionally, Cheng et al. teach that ODNs (oligonucleotides) including α and β arabinosides are included within the scope of the invention.

Cheng et al. does not specifically disclose isolated oligonucleotides comprising arabinose sugars and 2'-fluoro or 2'-difluoro modified nucleosides consecutively linked in the same molecule.

Chu et al. teach a method for stabilizing oligonucleotides by including 2'-deoxy-2'-fluoro-arabinofuranosyl nucleosides into the oligonucleotides. Additionally, Chu et al. teach that 2'-deoxy-2'-fluoro-β-L arabinosyluridine is a potent antiviral agent against HBV and EBV.

The Applicants respectfully submit that Chu's molecules are D-oligonucleotides containing a L-arabinonucleotide sugar whereas the oligonucleotides of the present invention are D-oligonucleotide comprised entirely of D-arabinonucleotide units. D units would base pair to a target but this is not the case for oligomers comprising L units.

Moreover, Cheng et al disclose the synthesis and use of duplexes and it is the duplex structure that endows these molecules with anticancer properties. The mechanism of action is not antisense-like, i.e. preventing gene transcription and expression in a sequence-specific manner as it is the case for the composition of the present invention, since these molecules cannot interact with cellular RNA and form a complex. This is explained by Cheng et al themselves as follows:

> "To this date however, results with antisense oligonucleotides (ODNs) have been somewhat disappointing in terms of successful chemotherapy ... As far as the present inventors are aware, the present invention provides, for the first time, modified oligonucleotides which show anticancer activity in other than an "antisense" manner, and which show selective toxicity toward certain cancer cell lines, and to certain cancer cell lines with multiple drug resistance." (Column 1, line 59-61 and column 2, lines 14-19) (emphasis added).

Therefore, one having ordinary skills in the art to which the invention pertains would not have been lead to modify the invention of Cheng et al with the method of Chu et al., to arrive to the present invention since the oligonucleotides of Cheng et al. are not providing an activity in an "antisense" manner as it is the case in the present invention.

The amendments to claims as presented above are believed to overcome the Examiner's rejections under 35 U.S.C. 103(a).

The Applicants submit that no new matter has been added by the present amendments.

It is submitted, therefore, that the claims are in condition for allowance. Reconsideration of the Examiner's rejections is respectfully requested. Allowance of claims 2 to 6, 19 and 20 at an early date is solicited.

In the event that there are any questions concerning this amendment or the application in general, the Examiner is respectfully urged to telephone the undersigned so that prosecution of this application may be expedited.